

### **ABSTRACT**

Chemically crosslinked polycyclooctene having excellent shape recovery properties and a method for its synthesis via ring-opening metathesis polymerization of cyclooctene using the dihydroimidazolylidene-modified Grubbs catalyst are disclosed. The polycyclooctene products, following curing with dicumyl peroxide can be shaped, the shape memorized, a new shape imparted with the original shape being recoverable by suitable temperature adjustment. The dependence of shape memory characteristics on degree of crosslinking was established. In addition to polycyclooctene, blends thereof with other materials such as SBR, EVA, polyurethane rubbers, and inorganic fillers can be utilized to provide chemically crosslinked products having excellent and tailored shape memory properties.

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